INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
40 C.F.R. PART 257.82
PLANT HAMMOND ASH POND 2 (AP-2)
GEORGIA POWER COMPANY

EPA's "Disposal of Coal Combustion Residuals from Electric Utilities" Final Rule (40 C.F.R. Part 257 and Part 261), §257.82, requires the owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment to design, construct, operate and maintain an inflow design flood control system capable of adequately managing flow during and following the peak discharge of the specified inflow design flood. The owner or operator must prepare an inflow design flood written plan documenting how the inflow design flood control system has been designed and constructed to meet the requirements of §257.82 .

The existing CCR surface impoundment known as AP-2 is located in Floyd County, west of Rome, Georgia on Plant Hammond property. The facility consists of a 26-acre CCR storage area. The inflow design flood consists of the rainfall that falls within the limits of AP-2, runoff from approximately 25 acres of adjoining watershed (runoff from the adjacent coal yard), and a nominal amount (relative to rainfall) of process flows. Storm water is temporarily stored within the limits of AP-2 and discharged through a system of spillways. AP-2 is divided into a northern and southern cell, each having an independent, primary spillway pipe to a smaller basin located in the northeast corner of the AP-2. The discharge from this smaller basin is routed to AP-1 through a fiberglass reinforced pipe which penetrates the top of the dike. An independent auxiliary spillway for the northern and southern cells consists of a corrugated metal pipe which penetrates the separator dike and discharges to a smaller basin located in the southwest corner of the pond. From the southwest cell, flows discharge through a 24-inch diameter high density polyethylene (HDPE) pipe to a tributary of the Coosa River.

The inflow design flood has been calculated using the Natural Resources Conservation Service method (also known as the Soil Conservation Service (SCS) method) using the 1000-yr storm event required for a Significant Hazard Potential facility. Appendix A and B from the Urban Hydrology for Small Watersheds (TR-55) were used to determine the rainfall distribution methodology. Precipitation values were determined from NOAA's Precipitation Frequency Data Server (Atlas-14).

This information was placed into a customized level pool flood routing spreadsheet to analyze the design storm while assuming 100% run-off into the surface impoundment from the contributing drainage area. Resulting calculations indicate that AP-2 can safely store and pass the 1000-yr, 24-hr inflow design storm. This plan is supported by appropriate engineering calculations which are attached.

The facility is operated subject to and in accordance with § 257.3-3 of EPA's regulations.

I hereby certify that the inflow design flood control system plan meets the requirements of 40 C.F.R. Part 257.82.

10/17

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Inflow Design Control System Plan:
Hydrologic and Hydraulic Calculation Summary

for

Plant Hammond Ash Pond 2

Prepared by:

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Originator: Schnabel Engineering, LLC

Reviewer: _____ 10/11/16
Jason S. Wilson Date

Approval: _____ 10/12/16
James C. Peques Date

1.0 Purpose of Calculation

The purpose of this report is to demonstrate the hydraulic capacity of the subject CCR impoundment in order to prepare an inflow design flood control plan as required by the United States Environmental Protection Agency's (EPA) final rule for Disposal of CCR from Electric Utilities (EPA 40 CFR 257).

2.0 Summary of Conclusions

A hydrologic and hydraulic model was developed for the Plant Hammond Ash Pond 2 to determine the hydraulic capacity of the impoundment. Ash Pond 2 is divided into a northern and a southern cell, each having an independent principal spillway which flow into a third cell in the southwest corner of the pond. The design storm for the Plant Hammond Ash Pond 2 is a 1000-year rainfall event. Southern Company has selected a storm duration of 24-hours for all inflow design flood control plans. The results of routing a 1000-year, 24-hour rainfall event through the impoundment are presented in Table 1 below:

Table 1 - Flood Routing Results for Plant Hammond Ash Pond 2

Plant Hammond	Normal Pool El (ft)	Top of embankment El (ft)	Peak Water Surface Elevation (ft)	Freeboard* (ft)	Peak Inflow (cfs)	Peak Outflow (cfs)
Ash Pond 2	593.1	598.7	598.41	0.29	733	27

*Freeboard is measured from the top of embankment to the peak water surface elevation

3.0 Methodology

3.1 HYDROLOGIC ANALYSES

The Plant Hammond Ash Pond 2 is classified as a significant hazard structure. As a significant hazard structure, Ash Pond 2 must be capable of safely storing and/or passing runoff resulting from the 24-hour, 1000-year storm event. A summary of the design storm parameters and rainfall distribution methodology for these calculations is summarized below in Table 2.

Table 2 - Plant Hammond Ash Pond 2 Storm Distribution

Hazard Classification	Return Frequency (years)	Storm Duration (hours)	Rainfall Total (Inches)	Rainfall Source	Storm Distribution
Significant	1000	24	10.6	NOAA Atlas 14	SCS Type II

The hydraulic capacity of Ash Pond 2 was evaluated using level pool routing methodology. The North and South Cells were combined with respect to storage and outflow capacity, limited by

the 24-inch diameter HPDE pipe. Discharge from Ash Pond 2 flows directly into the Coosa River. The contributing drainage area to Ash Pond 2 is approximately 0.08 mi^2, which includes runoff from the adjacent coal pile. The drainage basin for Ash Pond 2 is shown on Figure 1 within the supporting information.

3.2 HYDRAULIC ANALYSES

Storage values for the Ash Pond were determined by developing a stage-storage relationship utilizing contour data. Ash Pond 2 is divided into a northern and a southern cell, each having an independent principal spillway which flow into a third cell in the southwest corner of the pond. From the southwest cell, flows discharge through a 24-inch diameter high-density polyethylene (HDPE) pipe to the Coosa River. The North and South Cells were combined with respect to storage and discharge capacity, limited by the 24-inch diameter HDPE pipe. Table 3 summarizes the spillway system of Ash Pond 2.

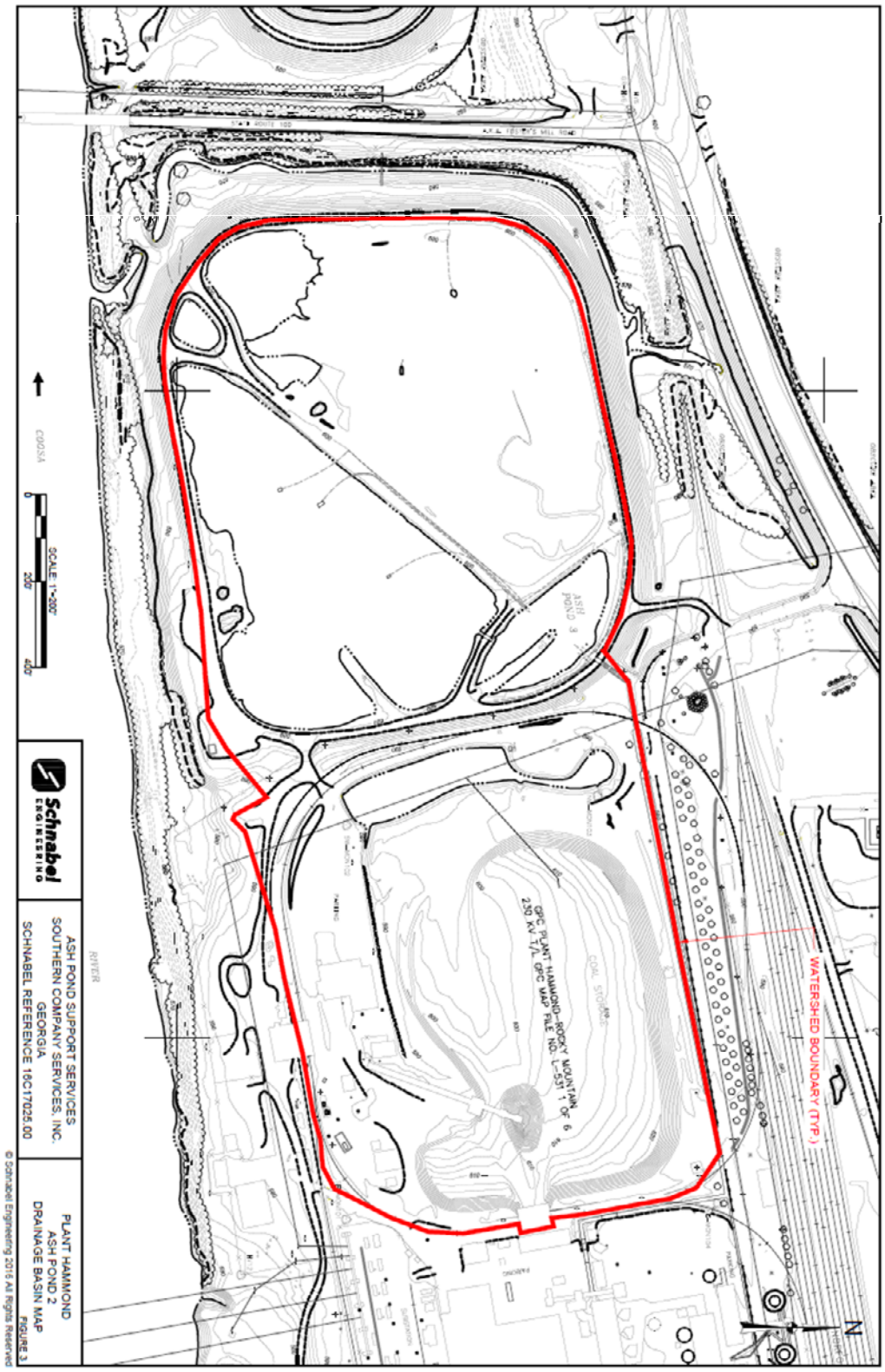
Table 3 – Ash Pond 2 Hydraulic Characteristics

Plant Hammond – Pond 2	Material / Size	US Invert, ft	DS Invert, ft	Length, ft
North Cell Principal Spillway	24” dia. CMP	595.12	595.05	52
South Cell Principal Spillway	24” dia. CMP	595.78	596.15	52
Southwest Cell Principal Spillway	24” dia. HDPE	594.12	+/- 565.0	+/- 180.0 ft

Based upon this analysis, Ash Pond 2 has sufficient spillway capacity and/or reservoir storage to safely pass the design storm. Supporting calculations related to Ash Pond 2 are included in the supporting information of this report.

4.0 SUPPORTING INFORMATION

4.1 DRAINAGE BASIN



4.2 STAGE STORAGE

ASH POND DAMS - PLANT HAMMOND
POND 2
16C17025.00
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STAGE STORAGE - AVERAGE END AREA METHOD
FOR DAM BREAK

EL (ft)	Area (ft^2)	Area (ac)	Inc. Volume (ac-ft)	Cum. Volume (ac-ft)
590	51	0.0	0.0	0.0
591	401	0.0	0.0	0.0
592	1819	0.0	0.0	0.0
593	10236	0.2	0.1	0.2
594	117681	2.7	1.5	1.6
595	159207	3.7	3.2	4.8
596	231700	5.3	4.5	9.3
597	499040	11.5	8.4	17.7
598	696222	16.0	13.7	31.4
599	797166	18.3	17.1	48.6

4.3 RATING CURVE

Elev.	Head 1	Weir 1	Orifice 1	Full Flow Pipe	P/S Total
594.12	0.00	0.00	-	68.33	0.00
595.00	0.88	5.08	-	69.40	5.08
595.12	1.00	6.20	-	69.55	6.20
596.00	1.88	7.59	14.19	70.60	7.59
596.30	2.18	-	16.43	70.95	16.43
596.76	2.64	-	19.37	71.49	19.37
597.00	2.88	-	20.74	71.77	20.74
598.00	3.88	-	25.67	72.93	25.67
598.70	4.58	-	28.62	73.73	28.62
599.00	4.88	-	29.80	74.06	29.80